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**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

**In the Matter of**

**Revision of the Commission's Rules  
To Ensure Compatibility With  
Enhanced 911 Emergency Calling  
Systems**

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**CC Docket No. 94-102**

**REPLY COMMENTS OF THE  
AD HOC ALLIANCE FOR PUBLIC ACCESS TO 911**

The Ad Hoc Alliance for Public Access to 911 ("Alliance") submits its Reply to the Comments filed in response to the Commission's Public Notice, DA 98-1936 (released September 22, 1998) ("Notice") concerning the Alliance's proffer to modify its proposed "Strongest Signal" rule to first use, if available, a "good" channel of communication from the assigned carrier.

**BACKGROUND**

In October of 1995, the Alliance submitted its "Strongest Signal" proposal to the Commission in order to alleviate the problem of inadequate wireless service to portable telephones in emergency situations. This proposal was supported by signal strength and engineering studies which demonstrated the existence of pervasive "holes" in cellular coverage. The existence of such "holes" is now acknowledged as a problem by all concerned. As the Trott report states, and the Independent Cellular Services Association ("ICSA") confirms, as a consequence, "calls from a portable cellular telephone will not

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be successfully completed approximately one third of the time in these rural and outer suburban" areas. (See: the Trott Report attached to the Notice and ICSA letter to the Commission dated 10/6/98).

The Strongest Signal proposal requires new cellular telephones to scan all 42 forward control channels on both the A and the B cellular systems, instead of just 21 forward control channels on one system alone, whenever 911 is dialed. Thus, by using the combined coverage areas from both cellular systems and eliminating most of the holes in coverage,<sup>1</sup> the chances of a 911 call being delivered to the Public Safety Answering Point ("PSAP") are greatly enhanced. Since the capability of scanning all 42 forward control channels is already resident in all cellular telephones, the insertion of a "flag" to overcome the "A only" or "B only" restrictions imposed by the carriers is a trivial exercise.<sup>2</sup> No change was suggested by the Alliance in the existing cellular system use of the strongest forward control channel because it is evident that this selection process would normally provide the user with the best channel of communication. (See discussion infra).

Wireless companies and their trade associations raised a number of "concerns" and potential "problems" with the Alliance's strongest signal proposal. The Commission responded on July 26, 1996, stating: "we seek comment on Alliance's specific proposal, including the tests contained in its Reply Comments to the Consensus Agreement, especially from a technical feasibility standpoint. If a commenter believes that Alliance's

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<sup>1</sup> The Alliance studies demonstrated that the combined coverage from the A side and the B side cellular systems fill in most of these "holes".

<sup>2</sup> Trott has stated several times that this trivial change can be accomplished with little expense. AirTouch (p. 5) and SBC (p. 6) say that only the handset manufacturers know the true cost. However, no manufacturer has taken issue with Trott's statement that the cost is inconsequential.

proposal is technically infeasible, it should provide its reasons in detail, with supporting engineering analyses.”<sup>3</sup> *No detailed reasons or supporting engineering statements were ever filed with the Commission in support of any so called “concerns” or “objections” and none have been supplied to date.*

The Commission also ordered that “the signatories to the Consensus Agreement, the Personal Communications Industry Association, and the Ad Hoc Alliance for Public Access to 911 file joint annual reports within 30 days after the end of each calendar year, as set forth in the text of this Order”. (Report and Order and Further Notice of Proposed Rulemaking, &162). The Cellular Telephone Industry Association (“CTIA”) and the Personal Communications Industry Association (“PCIA”) thereupon formed an organization called the Wireless E9-1-1 Implementation Ad Hoc (“WEIAD”) group which included the Association of Public-Safety Communications Officials-International, Inc. (“APCO”), the National Emergency Number Association (“NENA”) and the National Association of State Nine One One Administrators (“NASNA”) and was expanded to include manufacturing organizations but excluded the Alliance.<sup>4</sup> At the insistence of APCO, the Alliance was included in the WEIAD starting with the second meeting on November 6, 1997. At that time, the Alliance agreed to reopen the discussion of its Strongest Signal proposal and consider any “concerns” or “problems” that might be raised. The only stipulation required by the Alliance was the same as the Commission's directive that any such technical objections must be set forth in writing, in “detail, with

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<sup>3</sup> Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, *Report and Order and Further Notice of Proposed Rulemaking*, 11 FCC Rcd 18676, at & 144 (1996) (“Report and Order and Further Notice of Proposed Rulemaking”).

<sup>4</sup> CTIA has now proposed that CTIA, NENA, NASNA and APCO meet outside of the framework of the WEIAD and without the Alliance to address these same E-911 issues. See Attachment 2 to CTIA's comments.

supporting engineering analyses.” The Alliance also agreed to submit such materials to a WEIAD technical group for discussion. December 15, 1997 was set as the date for exchange of detailed statements and supporting engineering analysis. The Alliance submitted its materials along with a data request to CTIA. CTIA provided the Alliance with a publicly available TIA manual describing basic cellular system operation but refused to provide any of the data requested on the grounds it was “proprietary”.<sup>5</sup>

On January 6, 1998, the WEIAD technical committee met and the chairman asked if there were any other technical submissions. There being none, the meeting adjourned.

At the WEIAD meeting that followed, CTIA proposed, as an alternative to Strongest Signal, that it would use its best efforts to convince its members to program (and re-program) all cellular telephones to “A” or “B” preferred. (“A/B” or “B/A”). A/B operates to switch the cellular phone to the other carrier’s system when there is no signal from the assigned carrier. The Alliance accepted and endorsed this proposal as a partial solution.<sup>6</sup> It is now evident that the carriers have rejected the CTIA’s “best effort” en mass. An informal survey by the Alliance revealed that *all* of the carriers and agents contacted still program all cellular telephones they sell to the public “A” or “B” only.<sup>7</sup>

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<sup>5</sup> A copy of this data request has been previously filed with the Commission in this proceeding. The data request, if answered, would have provided empirical information which would support or disprove the wireless industries contentions. Failure to produce this information justifies an inference that if produced it would have been adverse to the wireless industry. Thus, contentions such as Trueposition’s that the Alliance “has failed to prove the extent to which cellular callers are unable to obtain assistance when they dial 9-1-1” fail to recognize that this information is in the hands of the wireless industry – not the Alliance. (Trueposition p. 5).

<sup>6</sup> See WEIAD report to the Commission dated January 30, 1998. In the same report is a discussion of call back. Although the Wireless Industry raised the same sort of “concerns” and “objections” about the Alliance’s call back solution, it was finally recognized as a sound technical solution. In the same WEIAD, CTIA offered to establish a nationwide data base of customer information to eliminate the need for implementation of the Alliance’s call back solution. Despite this history, some commentators are still talking about call back. See AWS p. 2-3

<sup>7</sup> See attachment “B”, which is bill insert from AirTouch which advises that, in an emergency, if the caller is unable to contact 911 over AirTouch’s system, he/she should consult the users equipment manual, reprogram the cellular phone to the other system, and, after completing the emergency call, reprogram the

ICSA also states that most of the cellular phones their members service are programmed "A" or "B" only.<sup>8</sup> Faced with the rejection of the voluntary implementation of A/B programming by its membership, CTIA now proposes automatic selection of the A/B mode when 911 is dialed. (This proposal would use the forward control channel to select the best voice channel and would "increase call set up time" which demonstrates the bogus nature of the same objections made by CTIA to Strongest Signal). Of the seven carriers who filed comments, only AWS endorsed CTIA's proposal.

The problem with the A/B solution is best demonstrated by the "dirty little secrets" map, which has been previously submitted in this proceeding. (Another copy is attached at Attachment "A" for convenient reference). As that map shows, there are very large areas in cellular service areas within which the carrier can (and does) process a 911 call attempt but cannot connect the call because of the inadequate signal from the caller's cellular phone. This problem is confirmed in the Lechuga call detail report which shows that the cell site processed all six Lechuga calls but was not able to complete any call by connection to the telephone network because of the low signal level from the handset.<sup>9</sup> Even if the Lechuga cellular phone had been programmed B/A, the phone would not have switched to the A side because the cell site processed calls which it could not complete. The Alliance tests with respect to the Spielholz situation showed the same situation.<sup>10</sup> In

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cellular phone back to "B" only. Obviously this tepid attempt to comply with CTIA's best efforts is totally inadequate.

<sup>8</sup> See ICSA 9/17/98 letter to the Chairman of the Commission, p. 2.

<sup>9</sup> As CTIA states "the Lechuga family's handheld cellular phone was able to successfully communicate with the serving carriers system." P. 13. CTIA concludes that the reason the calls were not connected is that the Lechuga family "mistakenly dialed non-dialable numbers." P. 14. Two of the numbers were "0", one number was a regular 7 digit number, another number was for a hospital in Georgia. **None of these calls was connected!** The only non-dialable number was "1-911" which was dialable over the other system. Furthermore, the carrier involved has since made "1-911" dialable over its system.

<sup>10</sup> CTIA's statement that the Alliance has "jettisoned its original claim" and that the Spielholz problem would not be solved because of the addition of a threshold signal gate is wrong and must be known by

these instances the A/B solution does not help and the call simply goes unanswered.<sup>11</sup> In spite of this fatal problem with the A/B “solution”, CTIA proposed that the Strongest Signal and its A/B “alternative” be referred to TR45.2, the wireless industry technical body. The Alliance declined this invitation in the belief that a decision in favor of the CTIA proposal from its own technical body was a foregone conclusion without regard to the merits – as has proven to be the case.<sup>12</sup>

At all times, the wireless industries’ so-called “concerns” and “objections” have been supported by nothing but their own *ipse dixit*. Some of these concerns did, however, alarm members of APCO and NENA. Specifically, the contention that the Strongest Signal would move emergency calls from a “good” channel of communication to a “slightly better” channel of communication and result in overloading of that system troubled them. The Alliance’s tests however, showed that in high density areas, where good channels of communication were available on both the A side and the B side, an even distribution of 911 calls would result. Furthermore, in overload situations, the cell switch and the 911 tandem switch choke off excess calls to 911. Nevertheless, the Alliance became convinced that the APCO and NENA people were genuine in their worry. The Alliance responded by submitting a proposal, originally made by NENA earlier this year, that a threshold gate be used to identify a “good” channel of communication to the Trott Group for their evaluation. Trott concluded that such a

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CTIA to be wrong. (CTIA 7 and fn 8). See the 3/26/96 report of the drive study submitted by the Alliance to the Commission of the route taken by Ms. Spielholz which shows that the signal from her selected carrier was below -80 dBm.

<sup>11</sup> CTIA misunderstands the letter from Audiovox which refers to its SID management program. The Alliance tested the Audiovox cell phone by disabling the SID management program, then selecting a location where the B side was slightly stronger than the A side and setting the phone “A only”. When a regular call was dialed it went through on the A side but when 911 was dialed the call was immediately placed on the B (stronger) side. The test was repeated on the other side where A was stronger. E.g. the Audiovox cellular phone automatically selects the Strongest Signal when 911 is dialed.

“gate” could be easily introduced before the Strongest Signal process and recommended a signal level of -80dBm as the criteria for a “good” channel of communication. Thus, the Alliance proposed, as a compromise, that the Strongest Signal process be implemented when a “good” channel of communication is not available from the assigned carrier.

### COMMENTS CONCERNING THE NOTICE

The Commission requested comments on the Alliance compromise in the Notice. Comments were filed by seven wireless carriers,<sup>13</sup> two wireless trade associations,<sup>14</sup> one location equipment provider<sup>15</sup> and the Texas 9-1-1 providers. Letter comments were also filed by APCO, NENA/NASNA and ICSA. Many of the commentators wished to discuss other matters or alternate proposals<sup>16</sup> which are outside of the issues framed by the Commission in the Notice. Some are apparently unaware of previous Commission decisions in this proceeding.<sup>17</sup> A few misunderstand the Alliance’s proposal apparently thinking that the absence of a good channel of communication will simply result in a switch to the other carrier instead of the search for the Strongest Signal.<sup>18</sup> The substantive comments relate to the proposed signal level of the gate. Arguments relating to the use of the strongest forward control channel are also revisited and rehashed.

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<sup>12</sup> Attachment 1 to CTIA comments.

<sup>13</sup> Airtouch Communications, Inc. (“AirTouch”); SBC Wireless, Inc. (“SBC”); AT&T Wireless Services, Inc. (“AWS”); Bell Atlantic Mobile, Inc. (“BAM”); Bell South Corporation (“BellSouth”); Ameritech Mobile Communications, Inc. (“Ameritech”) and United States Cellular Corporation (“USCC”).

<sup>14</sup> Cellular Telecommunications Industry Association (“CTIA”) and Rural Telecommunications Group (“RTG”).

<sup>15</sup> Trueposition, Inc. (“Trueposition”).

<sup>16</sup> CTIA automatic A/B and BAMS “double push”.

<sup>17</sup> The Commission has ruled that 911 calls shall not be subject to the carrier’s validation procedure.

Report and Order and Further Notice of Proposed Rulemaking, & 29. Yet AWS (p. 2), SBC (p.2), CTIA (p.4) and TIA (Attachment 1 to CTIA comments) state that selection of the strongest signal will result in a delay to accomplish “the normal authorization and registration processes” which the Commission has stated will not be required.

<sup>18</sup> See BAM comments at p. 4.

**I. THE PROPOSED ADDITION OF A THRESHOLD SIGNAL LEVEL  
“GATE” TO THE ALLIANCE’S STRONGEST SIGNAL PROPOSAL.**

The Alliance has proposed that when a good channel of communication is not available from the assigned cellular system to the user dialing 911, the cellular phone should then select the Strongest Signal. Trott Group recommends that –80dBm be adopted by the Commission as the signal level necessary for a “good” channel of communications.

ICSA “strongly supports” the Strongest Signal proposal and supports the Trott standard for identification of a good channel of communication. (ICSA letter of 10/6/98). Ameritech indicated that this signal level might be too low, stating that there is no guarantee that a signal strength above –80dBm will result in “good communication”. (Ameritech p.4). AirTouch suggested that the addition of a 9db margin by Trott was not justified, i.e. the signal level for “good” communications should be set at –89dBm. (AirTouch p. 4).<sup>19</sup> RTG concurred that “[a] –80 dBm signal is more than adequate for communicating critical information.” However, RTG went on to say “should the Commission elect to adopt some form of a strongest signal proposal, RTG suggests that the minimum signal quality triggering such a requirement be no stronger than –92dBm.” (RTG 3-4). Other commentators suggested that the determination of signal level be made by the “appropriate standards setting bodies”.<sup>20</sup>

As Trott points out, a threshold gate of –80dBm is “prudent” and “necessary to support portables experiencing . . . reliability between 65.6% and 90%.”<sup>21</sup> All of the

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<sup>19</sup> This opinion was rendered by Dr. Lee who AirTouch states is “a preeminent scholar and authority in the mobile telecommunications arena”. (AirTouch p. 4). Indeed he is. We have great respect for Dr. Lee and wish that his views had been placed on the record in their entirety by AirTouch.

<sup>20</sup> APCO, NENA, NASNA, Trueposition (p. 14) and SBC (p. 3) favor this approach.

<sup>21</sup> Trott Report of 8/19/98, p. 5.

commentators who expressed a view concerning the appropriate signal level for the gate proposed by the Alliance agreed that the appropriate number is somewhere between –80dBm and –92dBm.

The Alliance suggests that the Commission adopt an interim threshold standard of –85dBm as the gate, below which cellular telephones in the analog mode will automatically seek the Strongest Signal whenever 911 is dialed. This should not preclude any standards setting body from submitting evidence to the Commission that a different signal level would be more beneficial to the public.

**II. THE USE OF THE STRONGEST FORWARD CONTROL CHANNEL FOR SELECTION OF THE BEST AVAILABLE CHANNEL OF COMMUNICATION IS THE METHOD DESCRIBED BY THE STANDARDS OF THE WIRELESS INDUSTRY AND IS THE ONLY METHOD USED TO ACCESS THE CELLULAR NETWORK.**

At all times since the introduction of cellular service in 1984, all cellular telephones have been programmed to select the strongest forward control channel to monitor for incoming calls and to use to originate outgoing calls. (TIA-EIA 553). Searching out and selecting the strongest forward control channel is the *only* way for cellular analog handsets to obtain service. When a cellular telephone is turned on it looks for the instructions programmed by the cellular carrier into the phone. Almost all cellular phones are programmed by the selling cellular carrier, or its agent, to only scan the 21 forward control channels on its system. (“A only” or “B only”). The Strongest Signal proposal simply requires the cellular telephone to disregard these instructions

when 911 is dialed and instead select the strongest forward control channel from both cellular systems.<sup>22</sup>

The objections to the use of the strongest forward control channel border on the absurd. For example, USCC gives an example of its system in Rockford which operates on the “A” side as does the Chicago system licensed to Southwestern Bell Mobile Systems. (USCC Comments, p. 2) USCC hypothetically assumes that it has a customer near the border of the two systems who dials 911. If, USCC says, the received signal from its Rockford switch is below -80 dBm in strength and the Chicago signal at that location is higher, then under the Alliance proposal, the call will go to Chicago. That call will go to Chicago today because the “A only” cellular telephone will always select the strongest forward control A side channel – which, in the USCC example, is in Chicago. BAM gives us another silly example which assumes that the forward control channel is operating but the voice channels are not. (BAM Comments, p. 2). In this scenario the cell site diagnostics will shut the control channel down. Other examples such as multipath fading occur today in an environment where the recognized and approved methodology of assigning the best available channel of communication is by use of the strongest forward control channel. It is ironic that CTIA and BAM both criticize the Alliance’s use of the strongest forward control channel while at the same time belatedly proposing alternatives that also use the strongest forward control channel.

This forward control channel methodology is the standard selected by the industry, approved by the Commission and used by the cellular industry to select the best access pathway for almost fifteen years. If this method did not reliably select the best

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<sup>22</sup> Both of the alternative proposals from CTIA and BAM use the strongest forward control channel to

channel of communication it is fair to assume that it would have been replaced before now. It hasn't and there are no proposals for a change.

## CONCLUSION

In the course of the dialog concerning its Strongest Signal proposal, the Alliance has made changes in an effort to accommodate and assuage the concerns that have been raised. The addition of a gate to use a "good" channel of communication where available represents such an effort. None of the remaining arguments in opposition to the Alliance's proposal have any substance and have long ago been put to rest. CTIA points to the fact that 83,000 911 calls are completed every day but they have failed and refuse to reveal how many 911 calls are attempted but fail, which information is available from the call records.<sup>23</sup> The record shows that there are zones where calls from portable cellular phones are processed but cannot be connected because of inadequate signal. Trott and ICSA tell us that this problem occurs in approximately one third of the time in rural and suburban areas. The Alliance studies in Los Angeles, Dallas and Atlanta demonstrated the extensive and pervasive nature of these "holes". The Alliance studies of the Spielholz and Lechuga situations established that they were unable to communicate with 911 because they were located in an inadequate signal zone. The Strongest Signal proposal will significantly reduce the failure to connect 911 calls by giving the caller a 100% increase in the number of possible pathways to choose from when help is needed. The use of the strongest forward control channel is the same method used to complete all cellular calls. The criticisms of the use of such control channel are based on anomalies

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access the cellular network.

<sup>23</sup> See Lechuga call record which shows failed call attempts as evidence that this information is available to the wireless industry.

which are a function of the cellular system and not a result of the Strongest Signal proposal.

At the end of the day, it is evident that the opposition to the Strongest Signal is not based on the reasons given but rather on the perception by some members of the wireless industry that the adoption of the rule change proposed by the Alliance will undermine the argument that additional cell sites are needed for public safety reasons and the reflex opposition on the part of the wireless industry to any mandates by the Commission.<sup>25</sup> Such attitude reflects a deplorable lack of concern for any public interest considerations.

The Alliance respectfully requests that the Commission promptly adopt its modified Strongest Signal proposal

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Carl Hilliard', is written over a horizontal line.

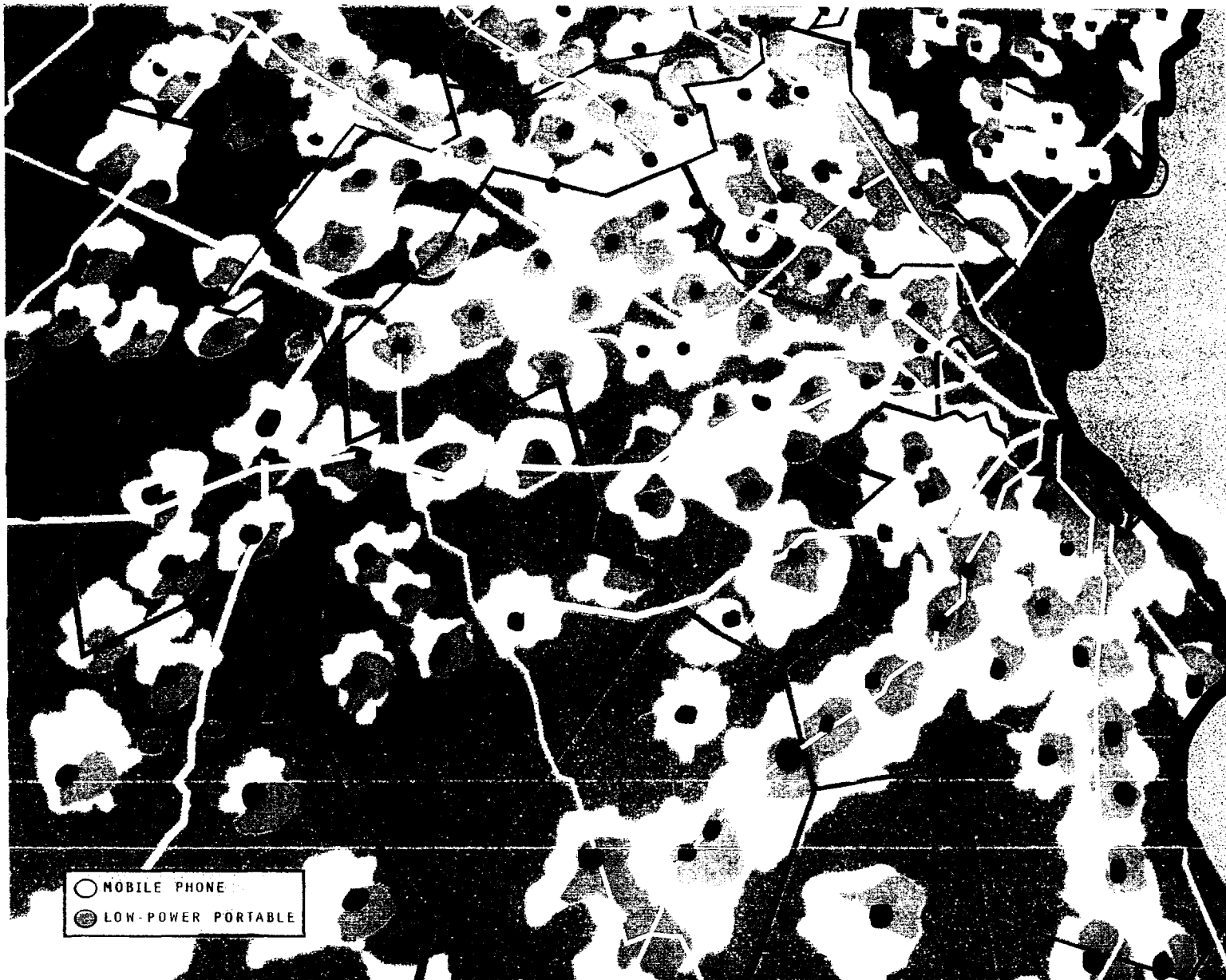
Carl Hilliard, on behalf of  
The Ad Hoc Alliance for Public Access to 911

October 19, 1998

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<sup>25</sup> For example, if the Commission mandates Strongest Signal, some carriers will delay deployment of location technology (Trueposition p. 3) or not improve their coverage (Ameritech p. 5).

**ATTACHMENT A**



GETTING STATIC OVER YOUR COVERAGE GAP?

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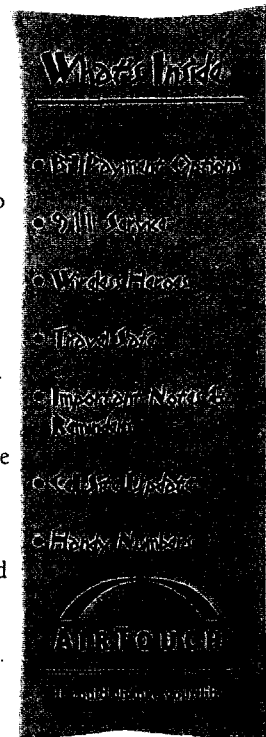
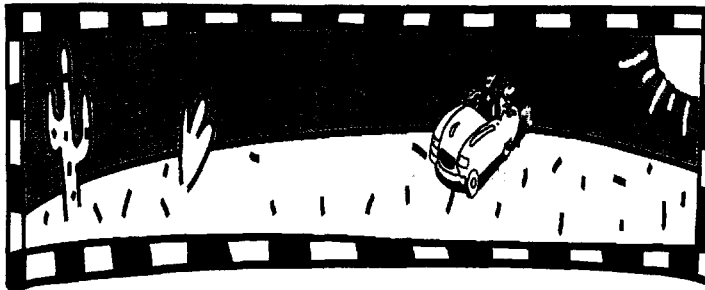
**ATTACHMENT B**

# AIRTIMES™

## Going To The Desert? Take Along Your AirTouch Cellular Phone

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- **Pay by credit card** – You can set up your account to be paid by credit card automatically each month! These payments are posted immediately.
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